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A Rare case of thrombosed cavernous hemangioma in the right arm of a child: A case report

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ABSTRACT

A cavernous hemangioma happens when capillaries small blood vessels that connect arteries and veins – swell and form a noncancerous mass called an angioma. In reality, cavernous hemangiomas are slow-flow venous malformations, not true vascular tumours. They are categorized as hamartomas. According to reports, Vascular Malformations can manifest itself anywhere, including the skin and subcutaneous layers of the head and neck, face, limbs, liver, gastrointestinal tract and even the thymus. Here we report a rare case of thrombosed cavernous hemangioma over the right arm in a 7-year-old since birth, discussing the diagnostic aspects and treatment modalities of such a lesion. This is the first report of its kind in English literature, to the best of our knowledge.

Keywords: Thrombosed cavernous hemangioma, av malformation, hemangioma, plastic surgery

1. INTRODUCTION

Hemangiomas are the most prevalent benign tumours of vascular channels and can be capillary, cavernous or mixed in nature (George et al., 2014). Hemangiomas make up almost 25% of all hand tumours, according to previous study. Hemangiomas made up about 13% of hand tumours in people aged 0 to 15 in research on benign tumours reported by previous study in 1994. Hemangiomas are the fourth most common hand vascular tumour, according to Figueiredo et al., (2000) on vascular tumours in the upper limbs. A common endothelium tumour in children and infants is the hemangioma. Hemangiomas often develop during or soon after birth and proliferate throughout the first 18 month (Pohane et al., 2022).

Hemangioma develops most commonly in subcutaneous adipose tissue but a rare muscle emergence might occur. This lesion is most frequently found on the thigh (Wierzbicki et al., 2013), while the upper extremity is an uncommon site, only accounting for 15% of cases (Jacobs et al., 2010). Apart from the physiologic function, we also noted the need to maintain the

cosmetic appearance of the hand, particularly in a young child, to maintain the patient's quality of life. A pediatric patient with a thrombosed cavernous hemangioma in the right upper arm was the subject of this case report to illustrate and describe the clinical and radiological aspects of the thrombosed cavernous hemangioma.

2. CASE PRESENTATION

A 7-year-old male child came to our hospital with complaints of swelling over the right arm since birth, child also complaints of blackish discoloration for 1 month. The swelling was small in size, soft in consistency initially and gradually progressed to its present size, hard in consistency. The child was taken to a physician, where symptomatic treatment was given initially. The symptoms were not relieved and the size of the swelling was increasing fine needle aspiration cytology (FNAC) was advised. FNAC was done and suggested single scaphoid spindle-shaped cells along with cyst macrophages against the hemorrhagic background.

Magnetic resonance imaging (MRI) arm was done and s/o slow flow vascular malformation such as venous malformation or hemangioma in the forearm. The child was referred to our hospital for further management. MRI brain was done and s/o normal. The child underwent sclerotherapy in the arm with sefrol, bleomycin and contrast was instilled and the pocket was closed in November 2021. The child underwent angioembolization 1 month ago procedure was uneventful. The child was discharged and was advised for follow-up.

The child has come with increased swelling on the right hand and blackish discoloration of the swelling for 1 month. The swelling was associated with pain. There was no history of injury, infection or sinus. The child was born to a 30-year-old mother with no significant medical history. The infant was delivered at 38 weeks of gestational age via normal vaginal delivery, child did not cry immediately after birth, so he was admitted to the neonatal intensive care unit and monitored for 4 days. A child MRI Brain was done at 4 days of life which was normal. On admission, the child's vitals are normal and the systemic examination was normal. On local examination, swelling was present over the right arm, as in (Figure 1).

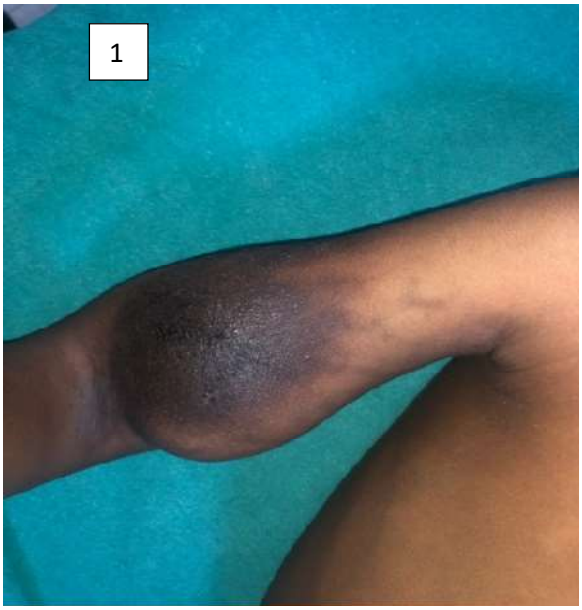

Figure 1 Clinical image showing thrombosed cavernous hemangioma on right arm

The swelling was diffuse, solitary swelling measuring 5 cm x 4 cm with its surface smooth, edges being indistinct, non-pulsatile, no fluctuant, non transilluminant, no reducible and non-compressible with blackish discoloration. There were no arterial bruits or venous hum on auscultation. The range of motion of the right hand at the elbow and shoulder is restricted. MRI right arm was done and suggested evidence of well-defined soft tissue mass lesion in the bulk of biceps muscle showing altered signs of intensity in the form of heterogeneous hyperintensity on T1W1 (Figure 2A) heterogeneous hyperintensity on T2W1 (Figure 2B) with mild to moderate vascularity on contrast scan (Figure 2C).

The lesion measures 5.7 cm x 5.3 cm x 5.3 cm and is causing posterior displacement of the vascular bundle. The findings are suggestive of cavernous hemangioma with organized thrombus. Under general anesthesia the excision of the swelling was done

and sent for histopathological examination. Histopathological features are suggestive of cavernous hemangioma showing evidence of organized thrombus. The patient is followed up at regular intervals. The patient is still under follow-up.

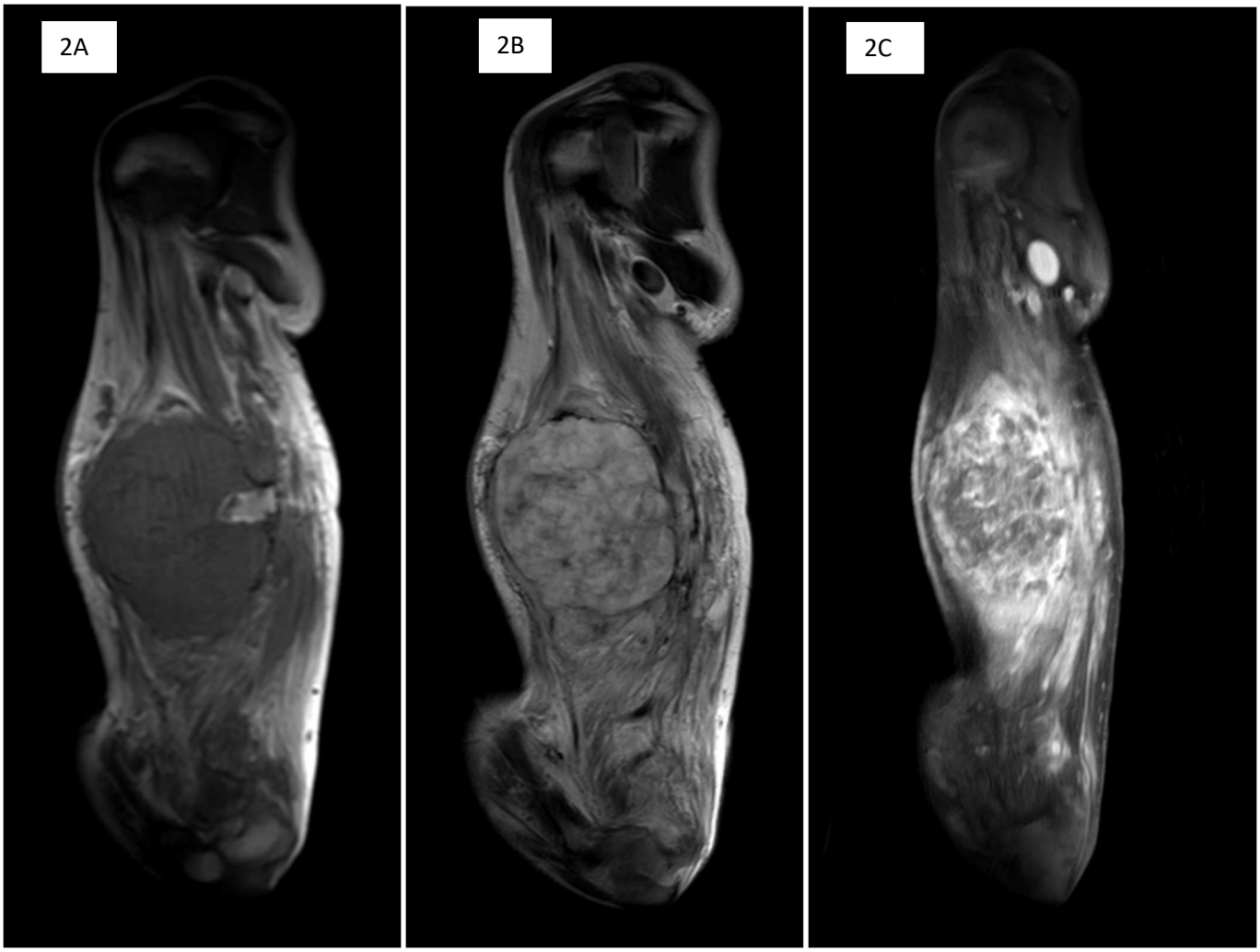

Figure 2 2A) MRI image showing Heterogenous hyperintensity on T1W1; 2B) MRI image showing Heterogenous hyperintensity on T2W1; 2C) MRI image showing mild to moderate vascularity on contrast scan

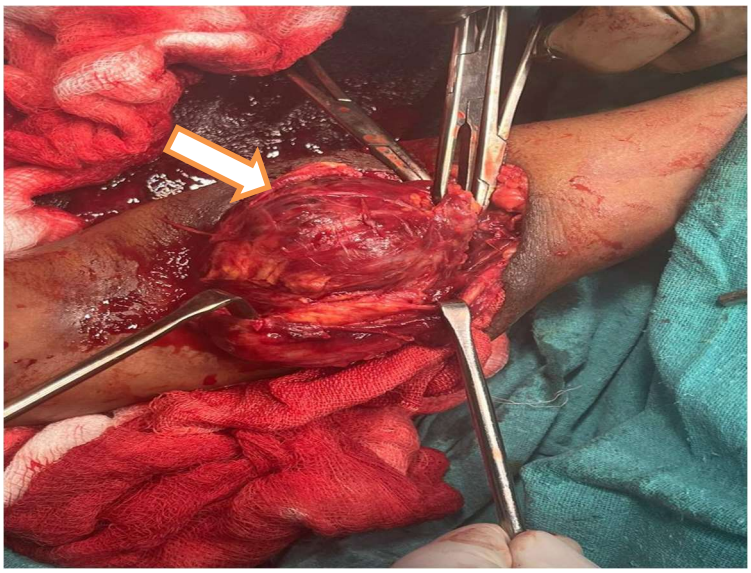

Figure 3 Intraoperative Image of the thrombosed cavernous hemangioma (white arrow)

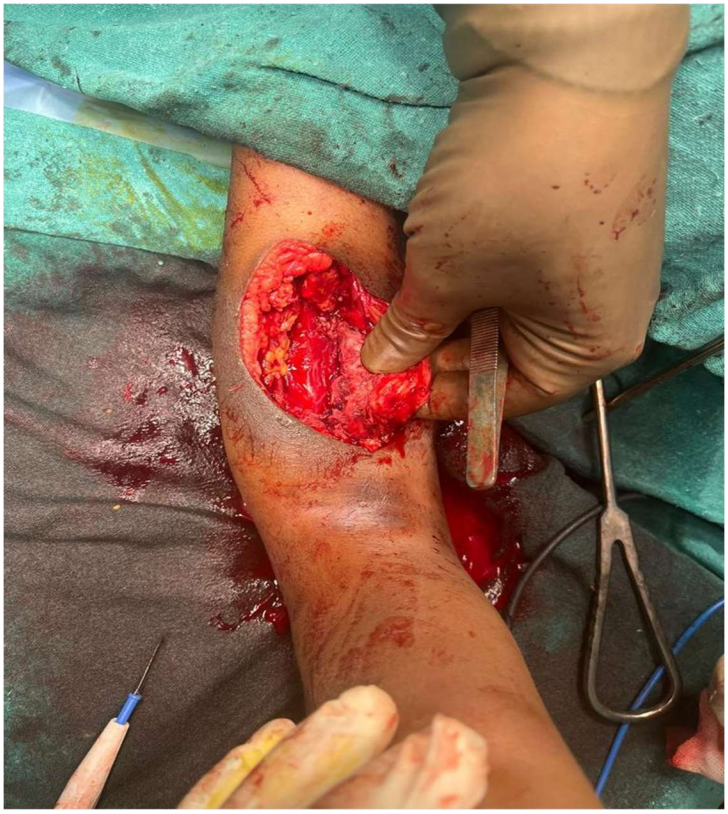

Figure 4 Intraoperative Image Post excision of the thrombosed cavernous hemangioma

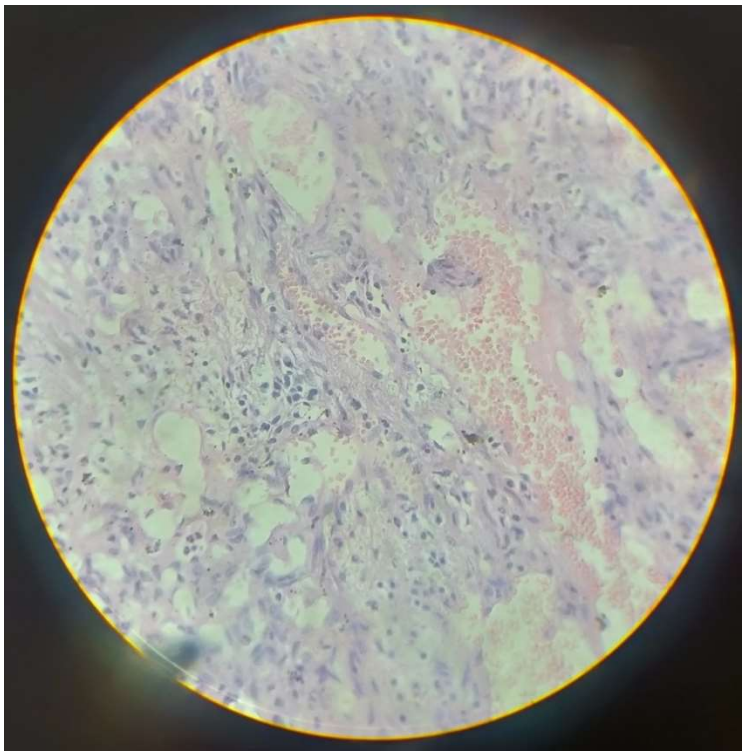

Figure 5 40 X Histopathological image

Figure 5 and 6 shows Lobules of capillary sized vascular channels lined by single layer of flattened endothelial cells. Large vessel is seen in the deeper tissue. lymphocytic infiltrate is also seen which shows predominantly ectatic channels

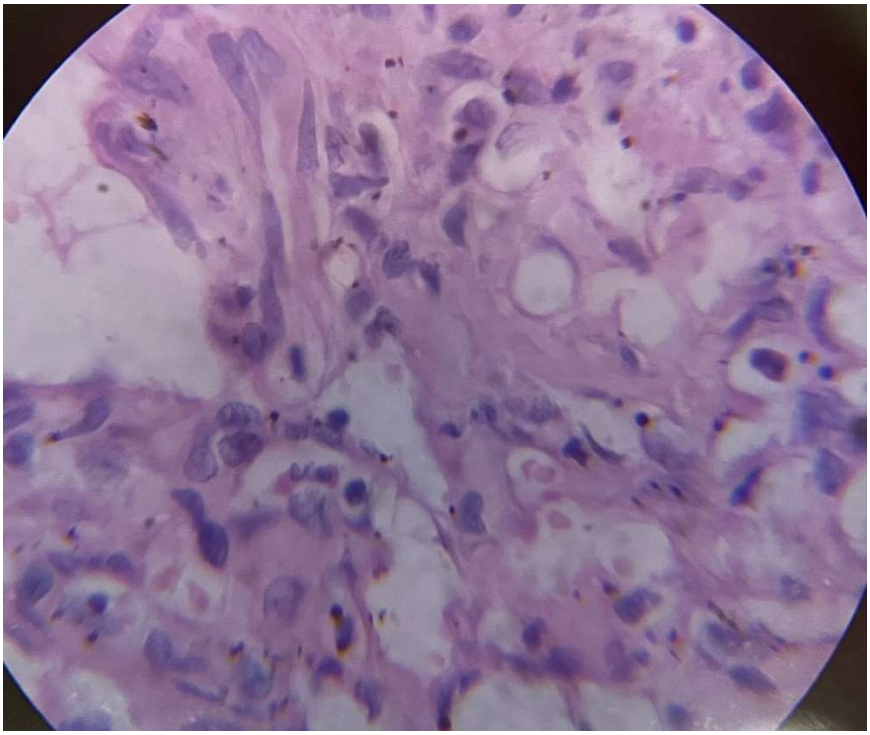

Figure 6 100 x Histopathological image

3. DISCUSSION

The prevalence of hemangiomas in females is well known to be higher. Hemangiomas should be distinguished from vascular malformations, which are not real neoplasms but rather localised anomalies of vascular morphogenesis brought on by malfunction in embryogenesis and vasculogenesis. Hemangiomas grow by endothelial cell hyperplasia. The head and neck region is more commonly affected especially the face, oral mucosa, lips, tongue and trunk (Bonet-Coloma et al., 2011).

The word "hemangioma" is a general one that covers a wide range of vascular disorders characterised by aberrant endothelial cell growth and proliferation. While endothelial cell growth is not a factor in vascular malformations, they are structural deviations of blood vessels (Pote et al., 2021). 7% of all benign soft-tissue tumours are soft-tissue haemangiomas, a common benign vascular lesion (Pourbagher et al., 2011). Hemangiomas are the most prevalent benign soft tissue tumour of infancy and childhood, affecting 12% of all infants. They are more common in girls, white people, premature children, twins and moms who are older at birth (Enjolras et al., 2007).

Histologically, there are five different forms of soft-tissue haemangiomas: Capillary, cavernous, arteriovenous, venous and mixed haemangiomas. The most typical haemangioma is a capillary hemangioma. Cavernous haemangiomas are big, deeply situated lesions that are detected later in life; they are typically intramuscular, do not spontaneously involute and require surgical treatment. There is no link between intramuscular hemangioma and traumatic aetiology (Niempoog and Pholsawatchai, 2019). Triceps, biceps, flexor digitoru superficialis, flexor digitorum profundus and pronator quadratus hemangiomas account for 27% of intramuscular hemangiomas.

Kayias et al., (2007) suggested a histological categorization for intramuscular hemangioma, which includes (a) no periosteal reaction, (b) periosteal reaction and (c) bone and bone marrow involvement. MRI, being the gold standard diagnostic of choice for hemangioma, revealed well defined soft tissue mass lesion in the bulk of biceps muscle showing altered signs of intensity in the form of heterogenous hyperintensity on T1W1 (Figure 2A) heterogenous hyperintensity on T2W1 (Figure 2B) with mild to moderate vascularity on contrast scan (Figure 2C).

The lesion measures 5.7 cm x 5.3 cm x 5.3 cm and is causing posterior displacement of vascular bundle. The findings are suggestive cavernous hemangioma with organised thrombus. No features of malignancy were observed in the case. Hemangioma treatment is based on the tumor's location, size, behaviour, extent, ability to be removed, accessibility and cosmetic goals. Depending on the size, the management may involve conservative treatment modalities such as imiquimod, cyclophosphamide and vincristine, minimally invasive techniques such as sclerotherapy, radiation therapy, argon laser therapy and Nd:YAG laser, surgical options such as ligation of feeding vessels and total excision biopsy.

In our case we instituted excision of the mass in toto. No recurrence was reported in our case. In addition to hemangiomas of soft tissue, central hemangiomas (hemangiomas of bone) and intramuscular hemangiomas have been documented in scientific literature. Along with the World Health Organisation (WHO), many scientists think that the majority of these suggested lesions are vascular malformations rather than actual tumours. These osseous vascular lesions have not been classified using the ISSVA classification.

4. CONCLUSION

Magnetic resonance imaging (MRI) opens the door to the diagnosis of intramuscular hemangioma, a benign vascular tumour, allowing for early treatments and better functional outcomes. Excision biopsy in its entirety, which gave our patient excellent functional results, was the chosen definitive treatment for the thrombosed hemangioma.

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Informed Consent

Written and oral Informed Consent was obtained from the patient.

Author's contribution

All the authors contributed equally to the case report.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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